

## **EE/CprE/SE 492 WEEKLY REPORT 4**

**March 27th – April 7th**

**Group number: 29**

**Project title: Building Blocks and Sub-Circuits with Magnetic Field Generators**

**Client &/Advisor: Robert Bouda, Wei Shen Theh, Mani Mina**

### **Team Members/Role:**

Andrew Murphy - Circuit Design, Simulation and Testing

Steven Huynh - Circuit Design, Simulation and Testing

William Nichols - CST Waveguide and Coupler Models Designer

Michael Lopez - Matlab/Simulink Mach-Zehnder Model Designer

Umair Sarwar - Inductor coil in Comsol Designer

- **Weekly Summary** For this week, the team members worked on a variety of different goals. The first was to make the circuit. We continued our experimentation of CST as well as COMSOL. We also continued to work on a prototype of the Mach-Zehnder simulation in Matlab.
- **Past week accomplishments**
  - Andrew: After receiving our board from the ETG Andrew and Steven started soldering and testing out our two PBC boards.
  - Michael Lopez: Continued work on Matlab simulation. Mainly focusing on optimizing his output and creating more types of graphs. This includes polar and 3d plots of the output.
  - William Nichols: Created a Ring Resonator and another coupler in CST. Worked on trying to figure out how CST works.
  - Umair Sarwar: Finished up his Work in Comsol and can now move on to working on other parts of the project.
- **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*
  - William: Unable to solve some problems in CST. Mainly figuring out how finicky the program can be with having the correct values.
  - Michael Lopez: Making sure his simulation is outputting the correct values
  - Steven & Andrew: ZVS PBC seems to be short shortage, which means they will have to redo their design and work on a new design

○ **Individual contributions**

<b><u>NAME</u></b>	<b><u>Individual Contributions</u></b> <i>(Quick list of contributions. This should be short.)</i>	<b><u>Hours this week</u></b>	<b><u>HOURS cumulative</u></b>
Andrew Murphy	Create KiCad footprint, Update KiCad PCB designs.	19	117
William Nichols	Studied Waveguide design and started working on creating a Mach-Zehnder loop in CST.	14	103
Michael Lopez	Creating a Mach-Zehnder Optical Simulation within MATLAB/Simulink	15	140
Steven Huynh	Assisting in KiCad PCB design, Researching Compatible parts for physical testings	12	71
Umair Sarwar	Created Spiral Coil within COMSOL using 2D Model and attempting to verify magnetic flux density by hand.	6	68

○ **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)? Who will contribute to it? Be as concise as possible.)*

- Andrew and Steven: Make a new PCB for ZVS circuit
- Michael Lopez: Make sure plots are correct.
- William Nichols: Learn more on CST and make a new upgraded waveguide
- Umair, William, Michael: Meet with Robert Bouda(client) one on one to discuss the various programs that are being used for the project so that both parties can get a better understanding.